FCC TEST REPORT (PART 22)

REPORT NO.: RF110104E07-2

MODEL NO.: Dolphin 6000

FCC ID: HD5D6000

RECEIVED: Jan. 04, 2011

TESTED: Jan. 18 to Feb. 09, 2011

ISSUED: Mar. 11, 2011

APPLICANT: Honeywell International Inc

ADDRESS: 9680 OLD BAILES RD FORT MILL SC 29707
UNITED STATES

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

LAB ADDRESS : No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Mar. 11, 2011

1 CERTIFICATION

PRODUCT :	Mobile Computer
BRAND :	Honeywell
MODEL NO.:	Dolphin 6000
APPLICANT :	Honeywell International Inc
TESTED :	Jan. 18 to Feb. 09, 2011
TEST SAMPLE :	ENGINEERING SAMPLE
STANDARDS :	**FCC Part 22, Subpart H**
	ANSI C63.4-2003

The above equipment (model: Dolphin 6000) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____, **DATE:** Mar. 11, 2011
(Midoli Peng, Specialist)

APPROVED BY : _____, **DATE:** Mar. 11, 2011
(May Chen, Deputy Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 22 & Part 2			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
2.1046 22.913 (a)	Maximum Peak Output Power Limit: max. 7 watts e.r.p peak power	PASS	Meet the requirement of limit.
22.863	Frequency Stability AFC Freq. Error vs. Voltage AFC Freq. Error vs. Temperature Limit: max. ±2.5ppm	PASS	Meet the requirement of limit.
2.1049 (h)	Occupied Bandwidth	PASS	Meet the requirement of limit.
22.917	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 22.917	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 22.917	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -19.39dB at 1697.6MHz.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Computer
MODEL NO.	Dolphin 6000
FCC ID	HD5D6000
POWER SUPPLY	DC 3.7V from battery or DC 5V from adapter or DC 5V from car charger
MODULATION TYPE	GMSK / 8PSK
RADIO TECHNOLOGY	GSM / GPRS / E-GPRS
OPERATING FREQUENCY	824MHz ~ 849MHz
NUMBER OF CHANNEL	124
MAX. ERP POWER	GSM Mode: 28.3dBm (0.680Watts) GPRS Mode: 28.3dBm (0.6691Watts) E-GPRS Mode: 23.5dBm (0.2226Watts)
ANTENNA TYPE	Please see note 2
MAX. ANTENNA GAIN	Please see note 2
DATA CABLE	USB charger cable(Shielded, 1.2m with one core) x 1
I/O PORTS	micro SD port x 1
ACCESSORY DEVICES	Battery, Adapter, Car Charger

NOTE:

1. There are Bluetooth technology (BT2.1+EDR), WLAN, GPS and GSM technology used for the EUT. and the functions of EUT listed as below table:

Function	Report No.
WLAN	RF110104E07
Bluetooth	RF110104E07-1
GSM	RF110104E07-2 (Part 22) RF110104E07-3 (Part 24)

2. There are three antennas provided to this EUT, please refer to the following table:

WLAN / Bluetooth Antenna Spec.				
No.	Antenna Type	Gain(dBi)	Connecter Type	Frequency range (MHz)
1	PIFA	3	NA	2.4 ~ 2.5 GHz
GPS Antenna Spec.				
No.	Antenna Type	Gain(dBi)	Connecter Type	Frequency range (MHz)
1	Patch	2	U.FL	1.575GHz
WWAM Antenna Spec.				
No.	Antenna Type	Gain(dBi)	Connecter Type	Frequency range (MHz)
1	PIFA	3	NA	850/1900

3. The EUT was manufactured by following manufacture and factory:

Manufacturer	Manufacturer Address
Honeywell International Inc	9680 OLD BAILES RD FORT MILL SC 29707 UNITED STATES
Factory	**Factory Address**
Universal Scientific Industrial Co., Ltd.	141, Lane 351, Taiping Rd., Sec. 1, Tsao Tuen, Nan-Tou Hsien, Taiwan
Universal Scientific Industrial de Mexico, S.A de C.V.	Periferico Manuel Gomez Morin #656 R. Santa Isabel, Anillo 44290 Guadalajara, Jal Mexico
USI Electronics (Shenzhen)Co., Ltd.	USI Electronics Park, North of High-Tech Industry Park, Nanshan District, Shenzhen, Guangdong, China
Universal Scientific Industrial (Shanghai) Co., Ltd.	NO. 1558, ZHANGDONG RD. PUDONG SHANGHAI 201203 CHINA
Universal Global Technology (Shenzhen) Co., Ltd.	1&2&4 Floor of Building B and 2 Floor of Building C, USI Electronics Park NanShan District, ShenZhen, P.R.C 518057
Universal Scientific Industrial Co., Ltd.	1F&4F No.135, Lane 351, Taiping Road, Sec. 1, Tsao Tuen Nan-Tou, Taiwan
Universal Global Scientific Industrial Co., Ltd.	B1, 1~3F & 5F, No.135, Lane 351, Taiping Road, Sec. 1, Tsao Tuen Nan-Tou, Taiwan

4. The EUT could be supplied with a power adapter, Car Charger and battery as below table:

Battery	
Brand:	Palladium
Part No.:	Dolphin 6000 Battery
Rating:	3.7V, 1530mAh, 5.7Wh
Adapter	
Brand:	Sunfone
Model No.:	ACW010A3-05Z
Input power :	100-240V, 50-60Hz, 0.4A
Output power :	5V, 2A DC output cable(unshielded, 1.4m)
Car Charger	
Brand:	Atech OEM Inc.
Model No.:	C15C-0520CD0-S3
Input power :	12-24V
Output power :	5V, 2A DC output cable (unshielded, 1.5m)

5. The EUT was pre-tested in chamber under following test modes :

Pre-test Mode	Description
Mode A	X-Y plane: EUT + Battery
Mode B	X-Z plane: EUT + Battery
Mode C	Y-Z plane: EUT + Battery
Mode D	**X-Y plane: EUT + USB charger cable + Adapter**
Mode E	X-Z plane: EUT + USB charger cable + Adapter
Mode F	Y-Z plane: EUT + USB charger cable + Adapter
Mode G	X-Y plane: EUT + USB charger cable + Car charger
Mode H	X-Z plane: EUT + USB charger cable + Car charger
Mode I	Y-Z plane: EUT + USB charger cable + Car charger

The worse radiated emission was found in **Mode D**. Therefore only the test data of the modes were recorded in this report.

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

124 channels are provided to this EUT. Therefore, the low, middle and high channels are chosen for testing.

	CHANNEL	FREQUENCY	TX MODE
LOW	128	824.2 MHz	GSM, GPRS, E-GPRS
MIDDLE	190	836.6 MHz	GSM, GPRS, E-GPRS
HIGH	251	848.8 MHz	GSM, GPRS, E-GPRS

NOTE:

1. Below 1 GHz, the channel 128, 190, and 251 were pre-tested in chamber. The channel 251 was chosen for final test.
2. Above 1 GHz, the channel 128, 190, and 251 were tested individually.
3. The worst case for final test is chosen when the power control level set 5.
4. The channel space is 0.2MHz.
5. The EUT is a GPRS class 10 device, which provide 2 up-link. After pre-tested both functions, found up-link with 1 time slot is worse, therefore, test results of output power, frequency stability, occupied bandwidth and band edge tests came out from this.
6. The EUT is an E-GPRS class 10 device, which provide 2 up-link. After pre-tested both functions, found up-link with 1 time slot is worse, therefore, test results of output power, frequency stability, occupied bandwidth and band edge tests came out from this.
7. The EUT has GSM, GPRS, E-GPRS functions. After pre-testing, GSM function is the worst case for all the emission tests.

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	OB	BE	CE	RE<1G	RE≥1G	
-	√	√	√	√	√	√	√	X-Y plane: EUT + USB charger cable + Adapter

Where **OP:** Output power **FS:** Frequency stability

OB: Occupied bandwidth **BE:** Band edge

CE: Conducted spurious emissions **RE<1G:** Radiated emission below 1GHz

RE≥1G: Radiated emission above 1GHz

OUTPUT POWER MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
128 to 251	128, 190, 251	GSM, GPRS, E-GPRS

FREQUENCY STABILITY MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
128 to 251	190	GSM

OCCUPIED BANDWIDTH MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
128 to 251	128, 190, 251	GSM, GPRS, E-GPRS

BAND EDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
128 to 251	128, 251	GSM, GPRS, E-GPRS

CONDUCTED SPURIOUS EMISSIONS MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
128 to 251	128, 190, 251	GSM

RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
128 to 251	251	GSM

RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY
128 to 251	128, 190, 251	GSM

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
OP	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
FS	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
OB	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
EM	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
BE	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
CE	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
RE < 1G	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu
RE ³ 1G	18deg. C, 63%RH, 1024 hPa	120Vac, 60Hz	Wen Yu

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 22

ANSI C63.4-2003

ANSI/TIA/EIA-603-C 2004

NOTE: All test items have been performed and recorded as per the above standards.

3.4 DESCRIPTION OF SUPPORT UNITS

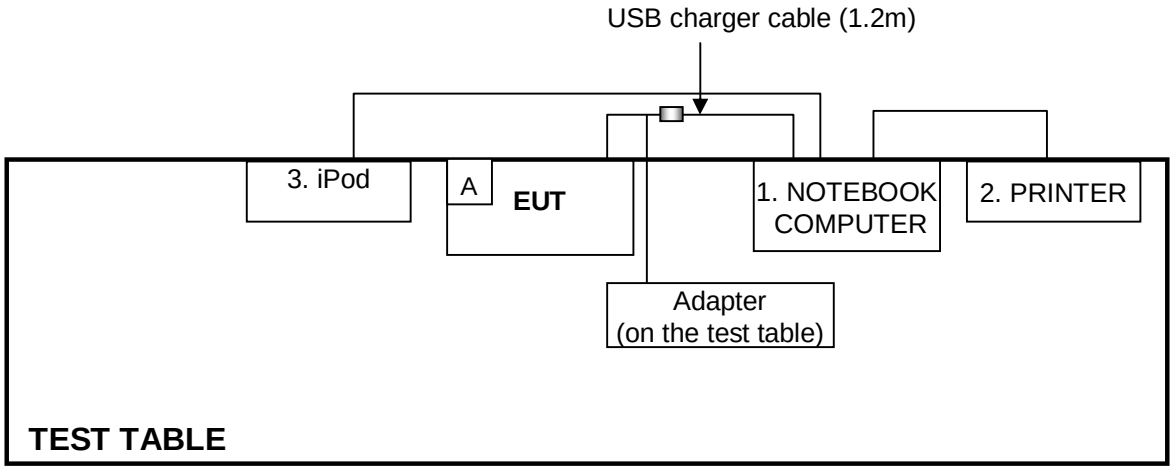
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	E6400	D814C A00 APCC	FCC DoC
2	PRINTER	CANON	K10202	FASF84644	FCC DoC
3	iPod	APPLE	A1199	YM712NB3VQ5	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB charger cable(Shielded, 1.2m with one core)
2	1.8m braid shielded wire, terminated with DB25 and Centronics connector via metallic frame, w/o core.
3	1 m shielded cable, terminated with USB connector, w/o core.

NOTE: All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST



NOTE: 1. Item A is the micro SD Card.

4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 22.913 (a) that “Mobile / Portable station are limited to 7 watts e.r.p”.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.1.3 TEST PROCEDURES

a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 128, 190 and 251 (low, middle and high operational frequency range.)

b. The conducted peak output power used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The path loss included the splitter loss, cable loss and 20dB pad loss. The spectrum set RB/VB 1MHz (GSM), then read peak power value and record to the test. (All transmitted path loss shall be considered in the test report data.)

c. E.I.R.P peak power measurement. In the open area test site, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

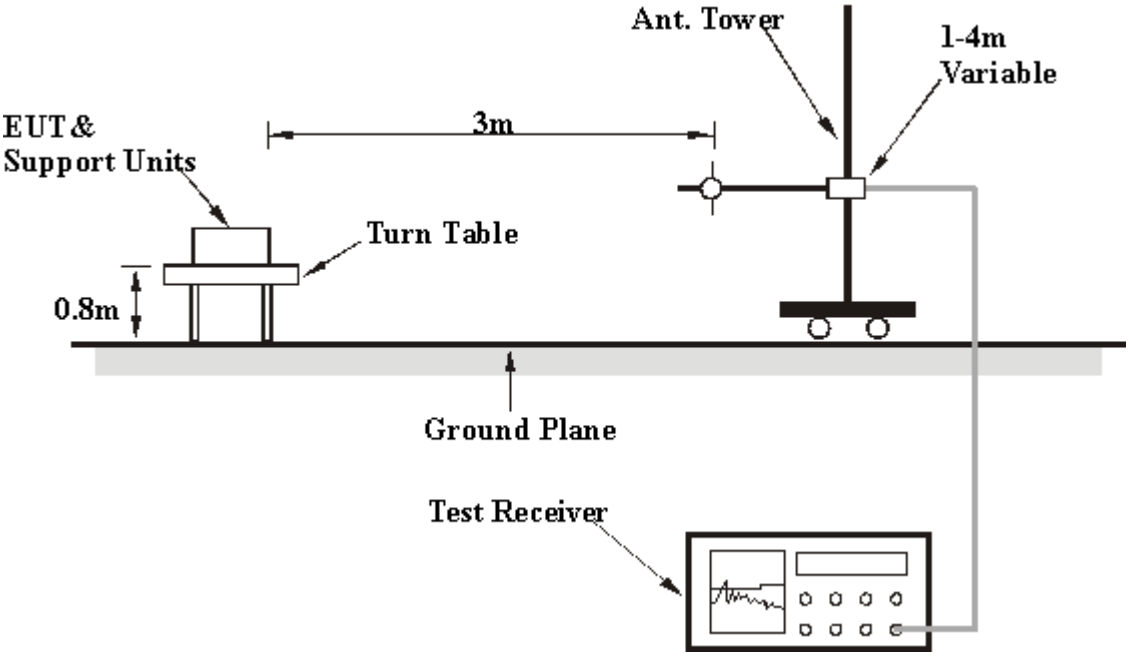
d. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the calibration antenna. Rotated the Turn Table to find the maximum radiation power. “Raw” is the spectrum reading value, “SG” is signal generator export power, “TX Gain” is calibration antenna isotropic gain value, “TX cable” is the transmitted cable loss between the calibration antenna and signal generator. The “Factor” means that the transmission path loss is equal to “SG” - “TX cable” + “TX Gain” – “Raw”.

e. Actually the real E.I.R.P peak power is equal to “Read Value” + “Factor”

f. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

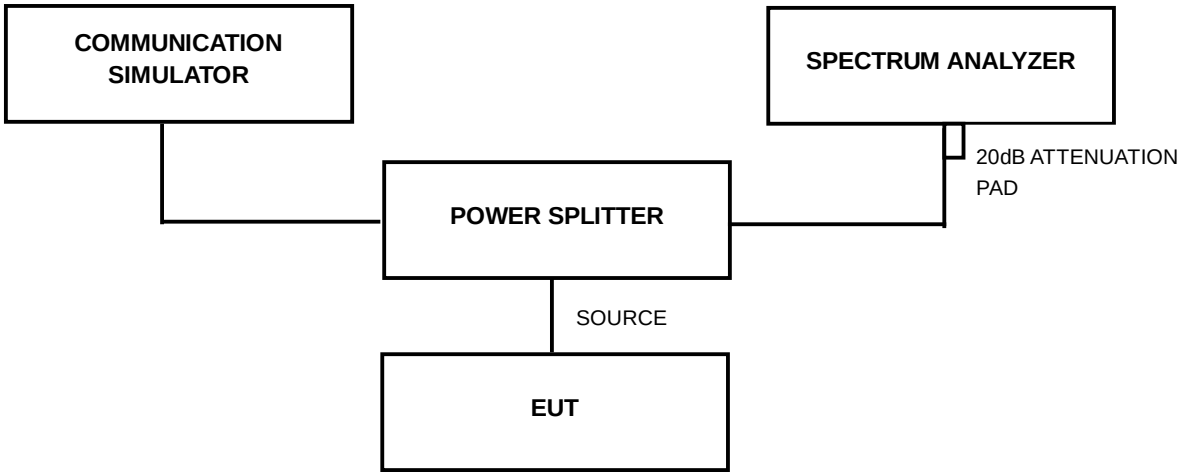
4.1.4 TEST SETUP

EIRP POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.5 EUT OPERATING CONDITIONS

a. The EUT makes a phone call to the communication simulator.

b. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

4.1.6 TEST RESULTS

FOR GSM MODE

CONDUCTED PEAK OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	Watt
128	824.2	27.5	5.0	32.5	1.7783
190	836.6	27.2	5.0	32.2	1.6596
251	848.8	27.0	5.0	32.0	1.5849

REMARKS: 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB).

ERP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	Watt
128	824.2	24.2	1.3	25.5	0.3563
190	836.6	26.7	1.2	27.9	0.6235
251	848.8	27.3	1.0	28.3	0.6800

REMARKS: 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = substitution Antenna Gain (dBi) + Cable Loss (dB) + Free Space Loss (dB).

FOR GPRS MODE

CONDUCTED PEAK OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	Watt
128	824.2	27.5	5.0	32.5	1.7783
190	836.6	27.2	5.0	32.2	1.6596
251	848.8	27.0	5.0	32.0	1.5849

REMARKS: 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB).

ERP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	Watt
128	824.2	24.2	1.3	25.5	0.3530
190	836.6	26.7	1.2	27.9	0.6164
251	848.8	27.3	1.0	28.3	0.6691

REMARKS: 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = substitution Antenna Gain (dBi) + Cable Loss (dB) + Free Space Loss (dB).

FOR E-GPRS MODE

CONDUCTED PEAK OUTPUT POWER					
CHANNEL NO.	FREQUENCY (MHz)	RAW VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	Watt
128	824.2	22.7	5.0	27.7	0.5888
190	836.6	22.5	5.0	27.5	0.5623
251	848.8	22.1	5.0	27.1	0.5129

REMARKS: 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB).

FOR E-GPRS MODE

ERP POWER					
CHANNEL NO.	FREQUENCY (MHz)	S.G VALUE (dBm)	CORRECTION FACTOR (dB)	PEAK OUTPUT POWER	
				dBm	Watt
128	824.2	19.6	1.3	20.9	0.1241
190	836.6	21.9	1.2	23.1	0.2065
251	848.8	22.5	1.0	23.5	0.2226

REMARKS: 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = substitution Antenna Gain (dBi) + Cable Loss (dB) + Free Space Loss (dB).

4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

According to the FCC part 2.4235 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The frequency error rate is according to the JTC standard that the frequency error rate shall be accurate to within 2.5ppm of the received frequency from the base station. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with the 2.1055(a)(1) –30℃~50℃.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 02, 2010	Aug. 01, 2011
OVEN	MHU-225AU	911033	Dec. 17, 2010	Dec. 16, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
AC POWER SOURCE	6205	1140503	NA	NA

NOTE: The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST PROCEDURE

a. Because of the measure the carrier frequency under the condition of the AFC lock, it shall be used the mobile station in the GSM link mode. This is accomplished with the use of the R&S CMU200 simulator station. The oven room could control the temperatures and humidity. The GSM link channel is the 190.

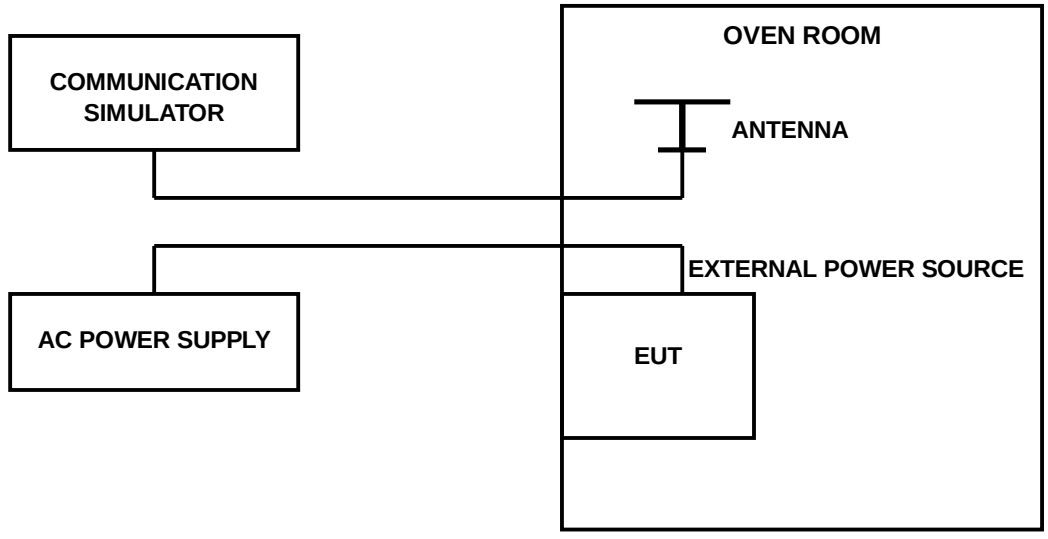
b. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.

c. EUT is connected the external power supply to control the AC input power. The various Volts from the minimum 138 Volts to 102 Volts. Each step shall be record the frequency error rate.

d. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing.

e. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

4.2.4 TEST SETUP



4.2.5 TEST RESULTS

AFC FREQUENCY ERROR vs. VOLTAGE			
VOLTAGE (Volts)	**FREQUENCY ERROR (Hz)**	**FREQUENCY ERROR (ppm)**	**LIMIT (ppm)**
138	62	0.074	2.5
102	59	0.071	2.5

AFC FREQUENCY ERROR vs. TEMP.			
TEMP. (℃)	**FREQUENCY ERROR (Hz)**	**FREQUENCY ERROR (ppm)**	**LIMIT (ppm)**
50	87	0.104	2.5
40	76	0.091	2.5
30	79	0.094	2.5
20	64	0.077	2.5
10	55	0.066	2.5
0	49	0.059	2.5
-10	58	0.069	2.5
-20	63	0.075	2.5
-30	77	0.092	2.5

4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

According to FCC 2.1049 (h) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

4.3.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 02, 2010	Aug. 01, 2011
OVEN	MHU-225AU	911033	Dec. 17, 2010	Dec. 16, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
AC POWER SOURCE	6205	1140503	NA	NA

NOTE: The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST SETUP

Same as Item 4.2.4 (Conducted Power Setup)

4.3.4 TEST PROCEDURES

a. The EUT was set up for the maximum peak power with GSM link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 128, 190 and 251. (low, middle and high operational frequency range.)

b. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss is the worst loss 6dB in the transmitted path track.

c. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.5 EUT OPERATING CONDITION

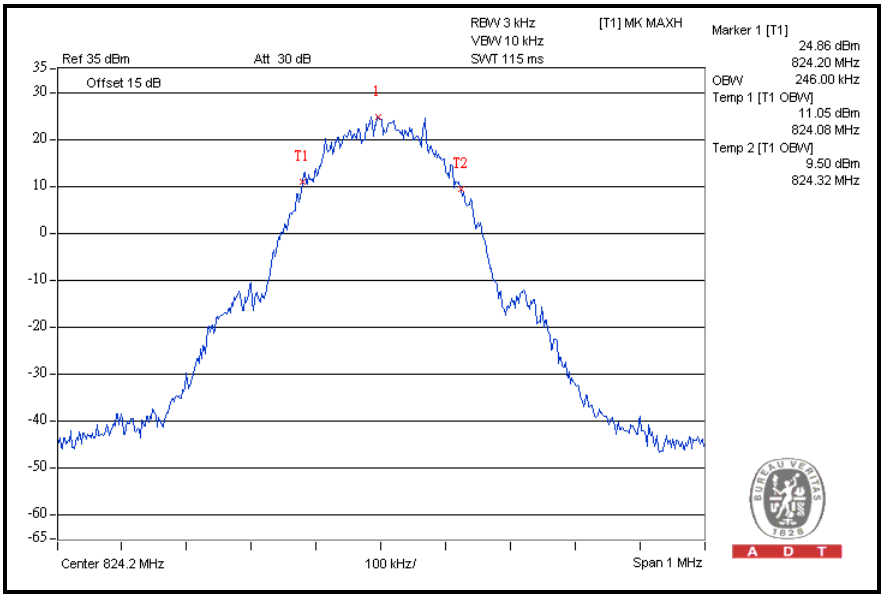
Same as Item 4.1.5

4.3.6 TEST RESULTS

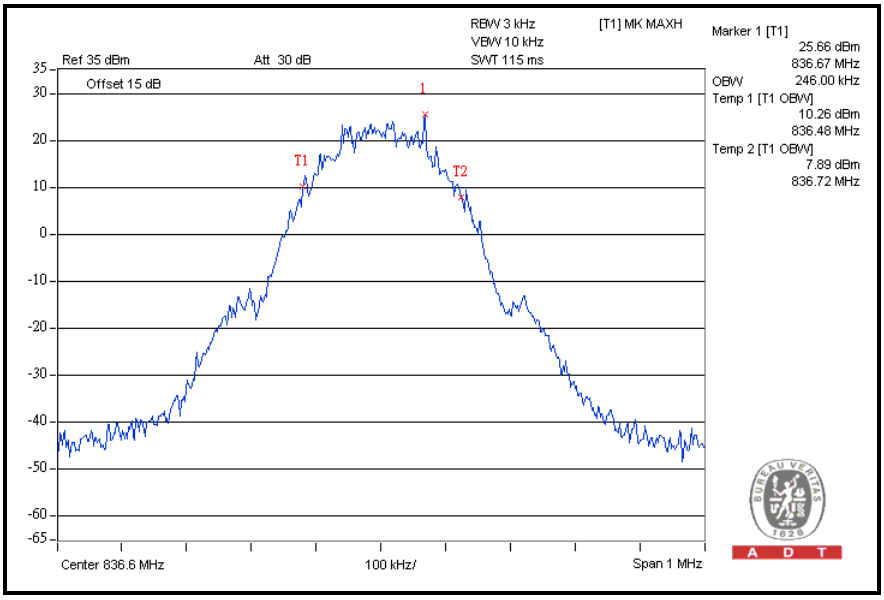
FOR GSM MODE

CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)
128	824.2	246.0
190	836.6	246.0
251	848.8	242.0

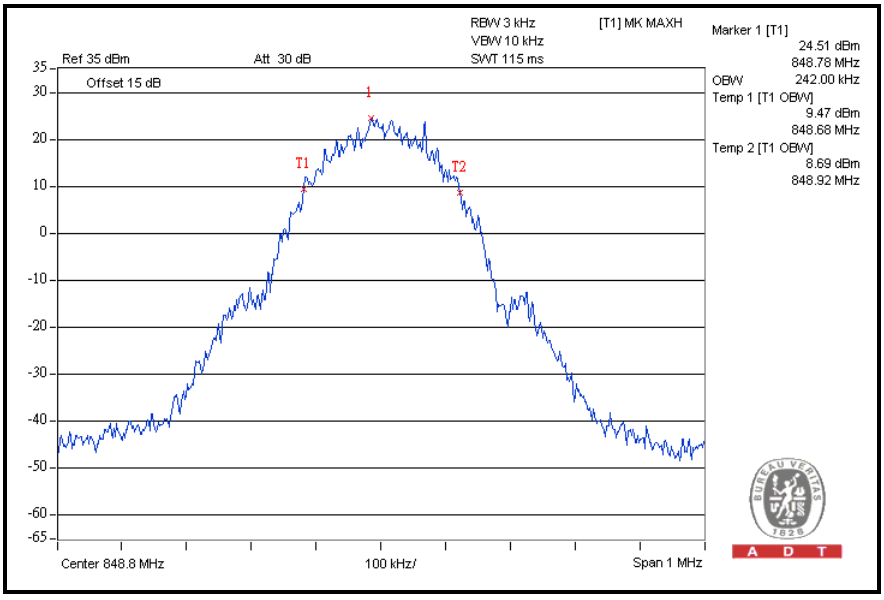
CH 128



CH 190


RBW 3 kHz
VBW 10 kHz
SWT 115 ms
[T1] MK MAXH
Marker 1 [T1]
25.66 dBm
836.67 MHz
OBW 246.00 kHz
Temp 1 [T1 OBW]
10.26 dBm
836.48 MHz
Temp 2 [T1 OBW]
7.89 dBm
836.72 MHz
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
T1
T2
1
Center 836.6 MHz
100 kHz/
Span 1 MHz

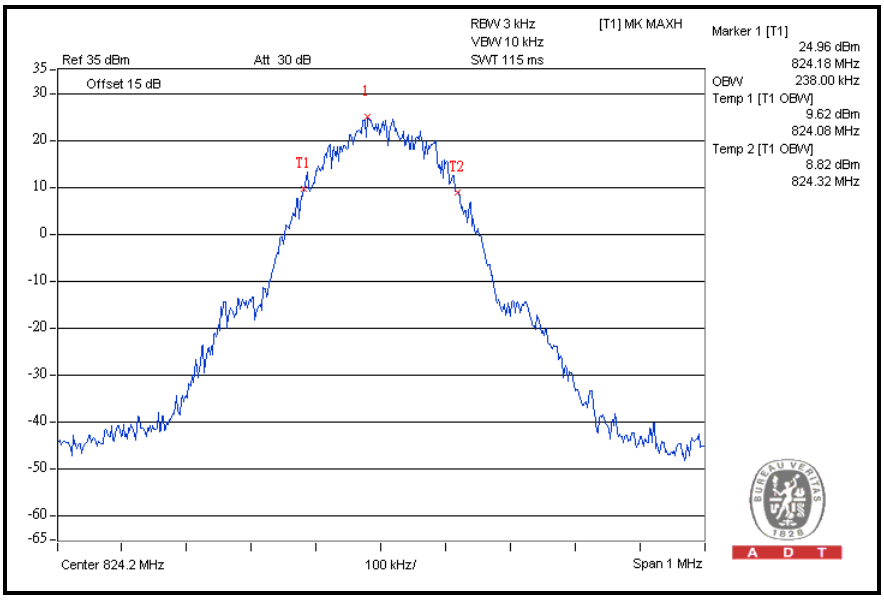
CH 251


RBW 3 kHz
VBW 10 kHz
SWT 115 ms
[T1] MK MAXH
Marker 1 [T1]
24.51 dBm
848.78 MHz
OBW 242.00 kHz
Temp 1 [T1 OBW]
9.47 dBm
848.68 MHz
Temp 2 [T1 OBW]
8.69 dBm
848.92 MHz
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
T1
T2
1
Center 848.8 MHz
100 kHz/
Span 1 MHz

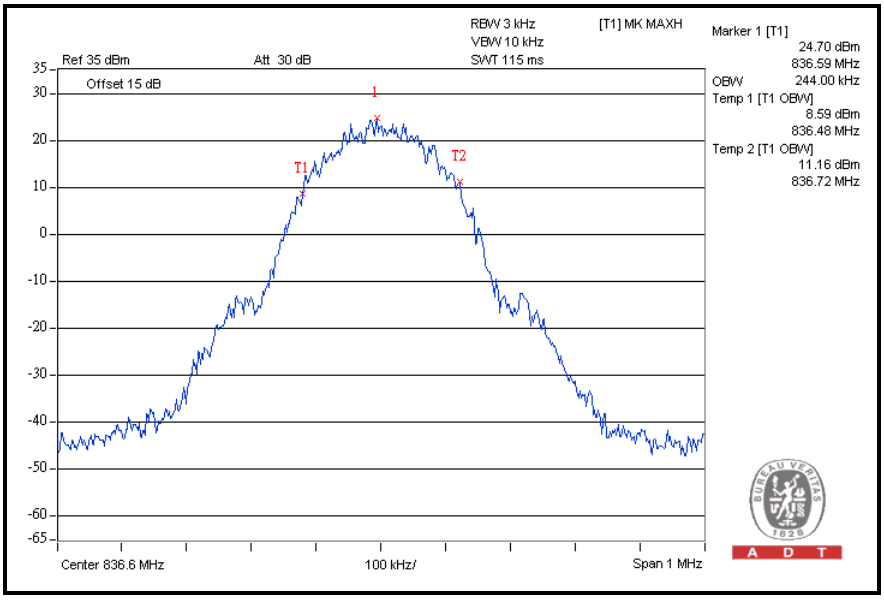
FOR GPRS MODE

CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)
128	824.2	238.0
190	836.6	244.0
251	848.8	246.0

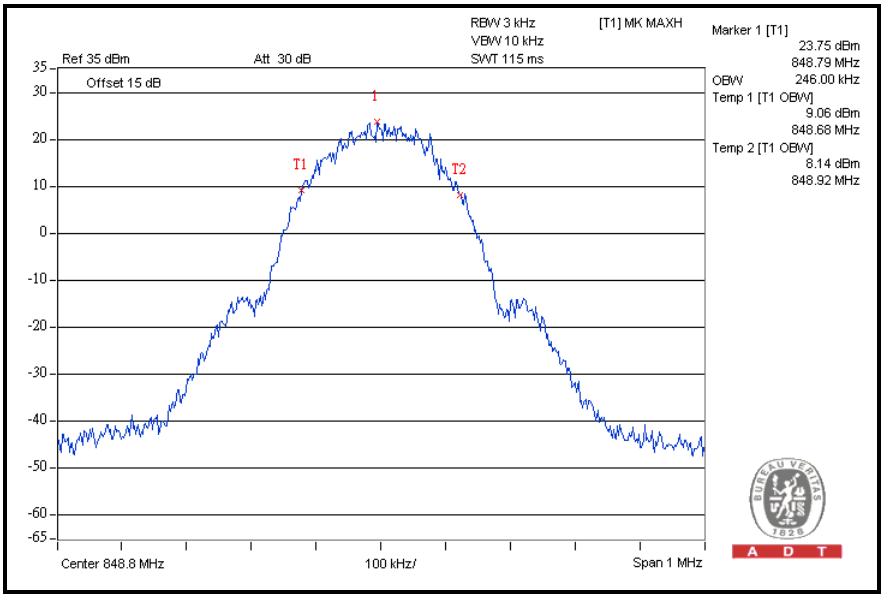
CH 128



CH 190


RBW 3 kHz
VBW 10 kHz
SWT 115 ms
[T1] MK MAXH
Marker 1 [T1]
24.70 dBm
836.59 MHz
OBW 244.00 kHz
Temp 1 [T1 OBW]
8.59 dBm
836.48 MHz
Temp 2 [T1 OBW]
11.16 dBm
836.72 MHz
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
T1
T2
Center 836.6 MHz
100 kHz/
Span 1 MHz

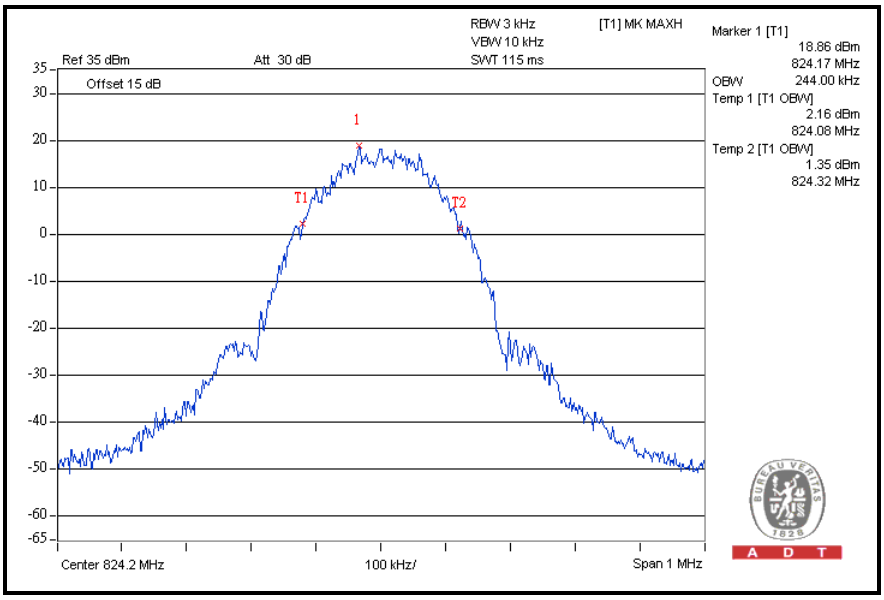
CH 251


RBW 3 kHz
VBW 10 kHz
SWT 115 ms
[T1] MK MAXH
Marker 1 [T1]
23.75 dBm
848.79 MHz
OBW 246.00 kHz
Temp 1 [T1 OBW]
9.06 dBm
848.68 MHz
Temp 2 [T1 OBW]
8.14 dBm
848.92 MHz
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
T1
T2
Center 848.8 MHz
100 kHz/
Span 1 MHz

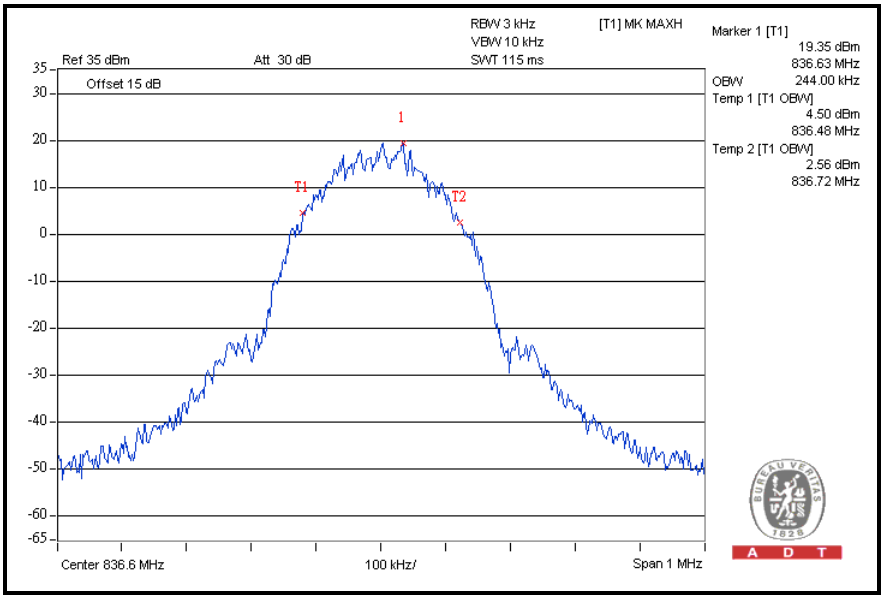
FOR E-GPRS MODE

CHANNEL	FREQUENCY (MHz)	99% OCCUPIED BANDWIDTH (kHz)
128	824.2	244.0
190	836.6	244.0
251	848.8	248.0

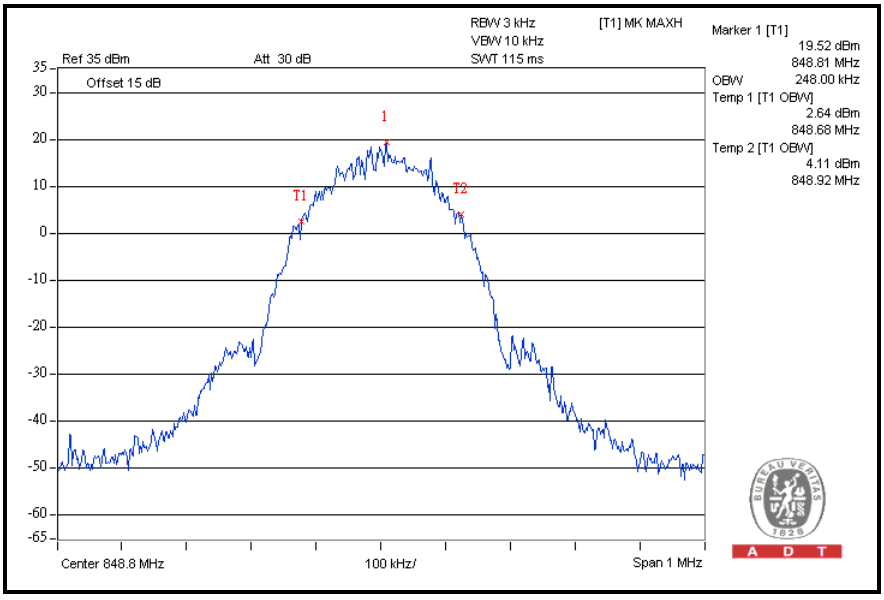
CH 128



CH 190


RBW 3 kHz
VBW 10 kHz
SWT 115 ms
[T1] MK MAXH
Marker 1 [T1]
19.35 dBm
836.63 MHz
OBW 244.00 kHz
Temp 1 [T1 OBW]
4.50 dBm
836.48 MHz
Temp 2 [T1 OBW]
2.56 dBm
836.72 MHz
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
Center 836.6 MHz
100 kHz/
Span 1 MHz

CH 251


RBW 3 kHz
VBW 10 kHz
SWT 115 ms
[T1] MK MAXH
Marker 1 [T1]
19.52 dBm
848.81 MHz
OBW 248.00 kHz
Temp 1 [T1 OBW]
2.64 dBm
848.68 MHz
Temp 2 [T1 OBW]
4.11 dBm
848.92 MHz
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
Center 848.8 MHz
100 kHz/
Span 1 MHz

4.4 BAND EDGE MEASUREMENT

4.4.1 LIMITS OF BAND EDGE MEASUREMENT

According to FCC 22.917 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 02, 2010	Aug. 01, 2011
OVEN	MHU-225AU	911033	Dec. 17, 2010	Dec. 16, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
AC POWER SOURCE	6205	1140503	NA	NA

NOTE: The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST SETUP

Same as Item 4.2.4 (Conducted Power Setup)

4.4.4 TEST PROCEDURES

a. The EUT was set up for the maximum peak power with GSM link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels, 128 and 251. (low and high operational frequency range.)

b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss is the worst loss 6dB in the transmitted path track.

c. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz.

d. Record the max trace plot into the test report.

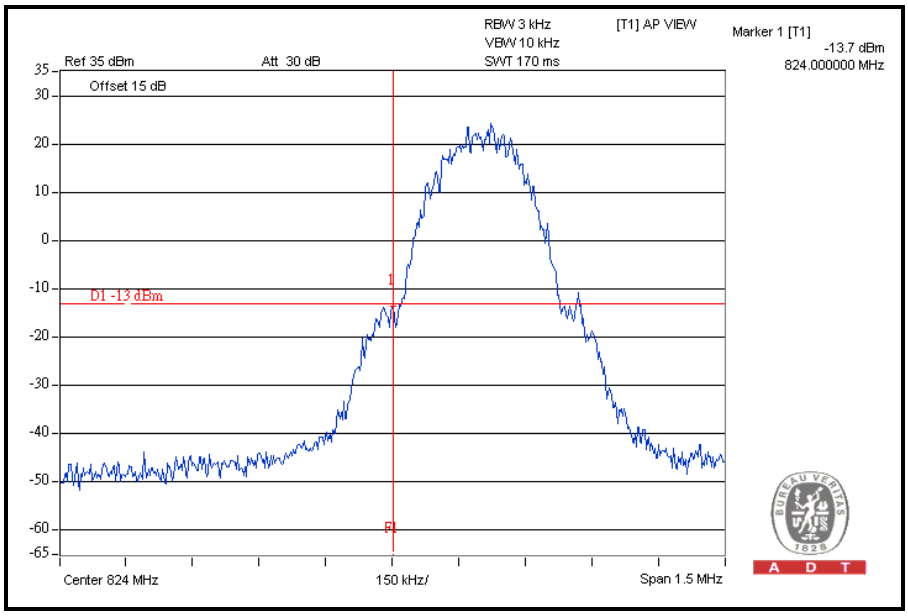
4.4.5 EUT OPERATING CONDITION

Same as Item 4.1.5

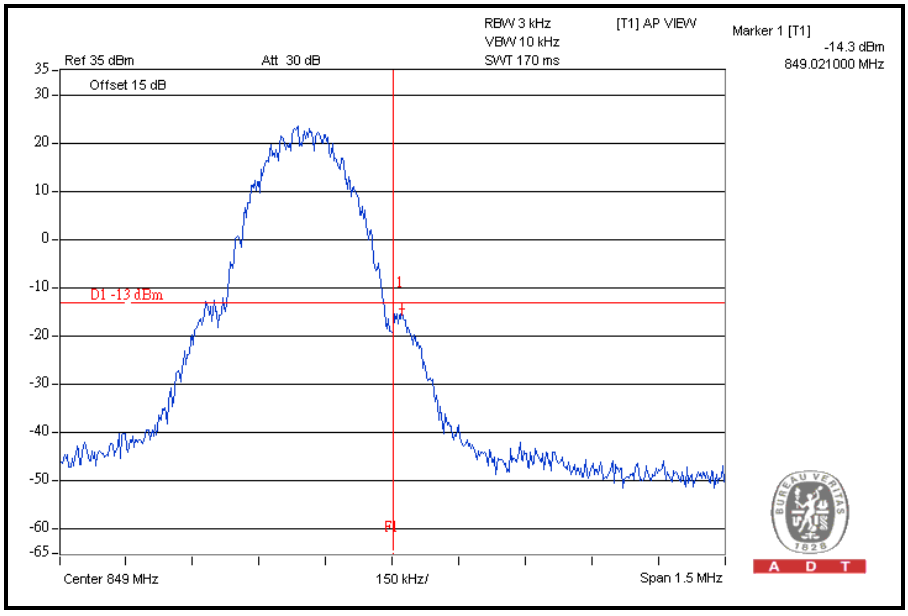
4.4.6 TEST RESULTS

FOR GSM MODE

LOWER BAND EDGE

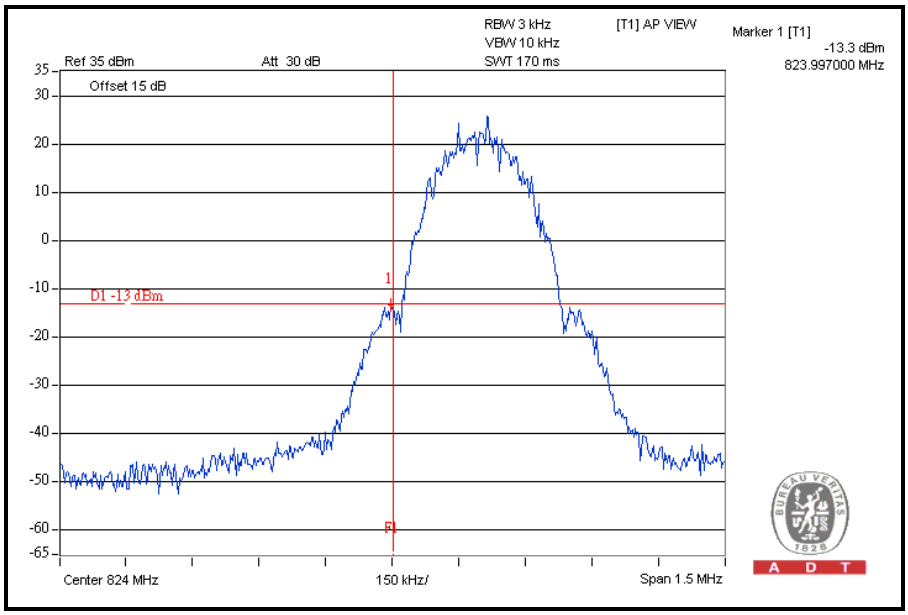


HIGHER BAND EDGE

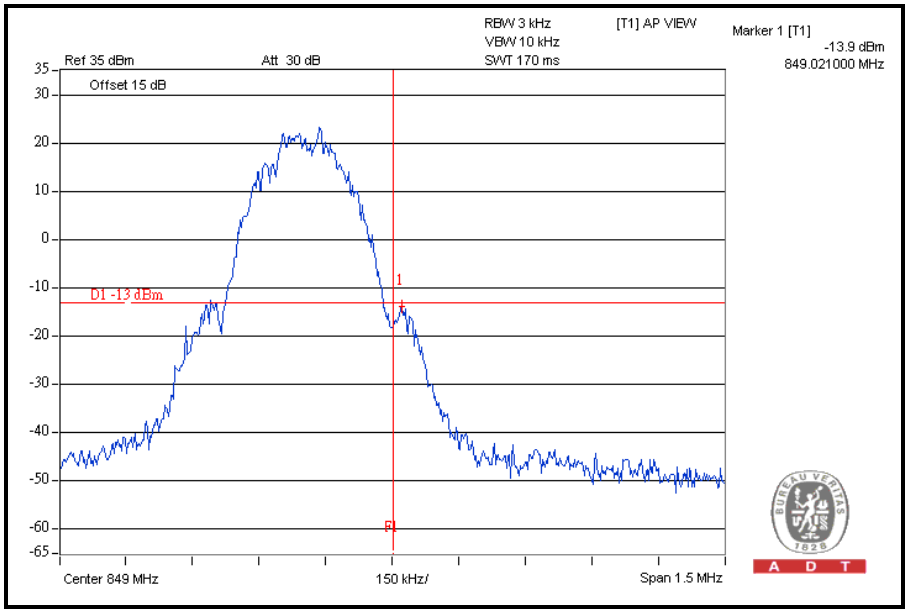


FOR GPRS MODE

LOWER BAND EDGE

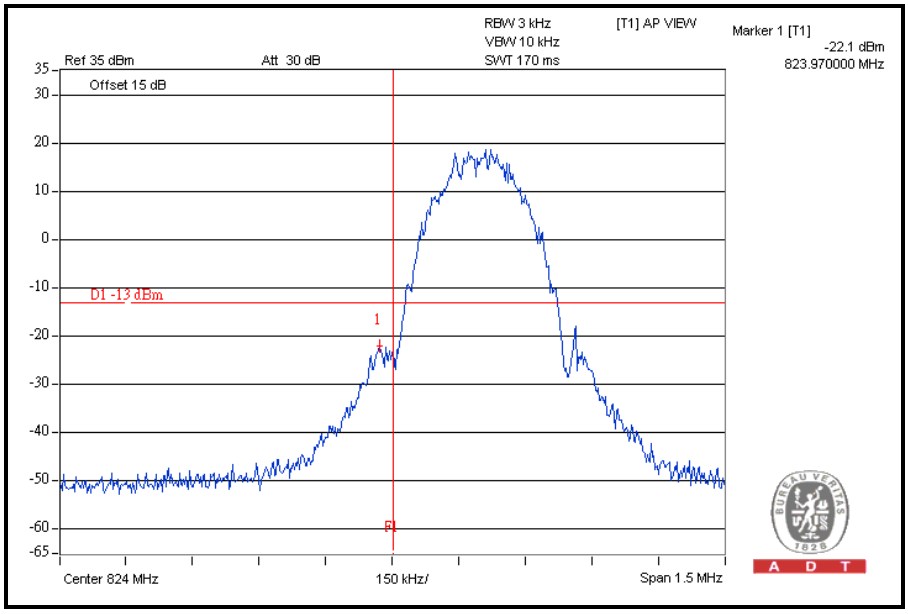


HIGHER BAND EDGE

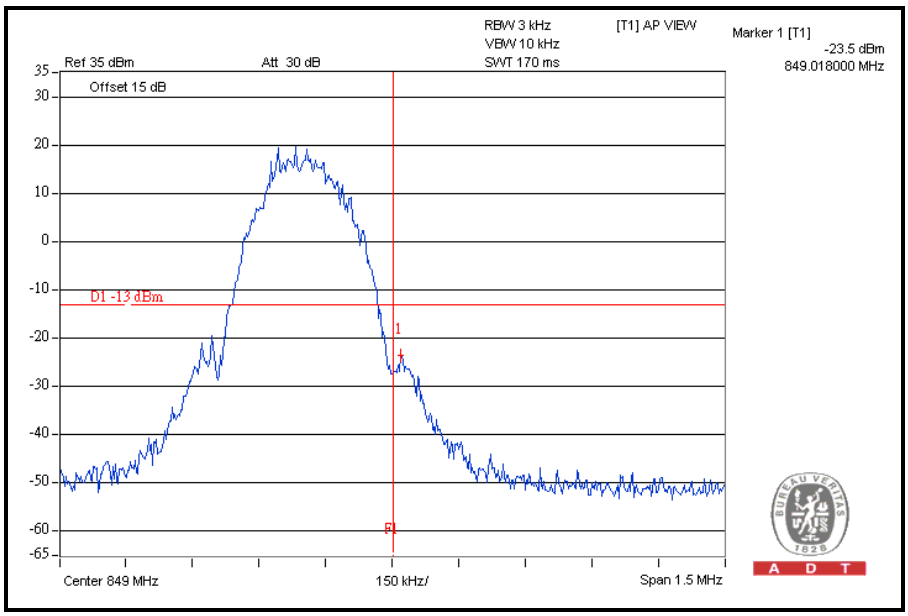


FOR E-GPRS MODE

LOWER BAND EDGE



HIGHER BAND EDGE



4.5 CONDUCTED SPURIOUS EMISSIONS

4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

In the FCC 22.917, On any frequency outside a licensee's frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission equal to –13dBm.

4.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 02, 2010	Aug. 01, 2011
OVEN	MHU-225AU	911033	Dec. 17, 2010	Dec. 16, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
AC POWER SOURCE	6205	1140503	NA	NA
Wainwright Instruments Band Reject Filter	WRCG1850/1910-1830/1930-60/10SS	SN1	NA	NA
* Wainwright Instruments High Pass Filter	WHK3.1/18G-10SS	SN1	NA	NA

NOTE: The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

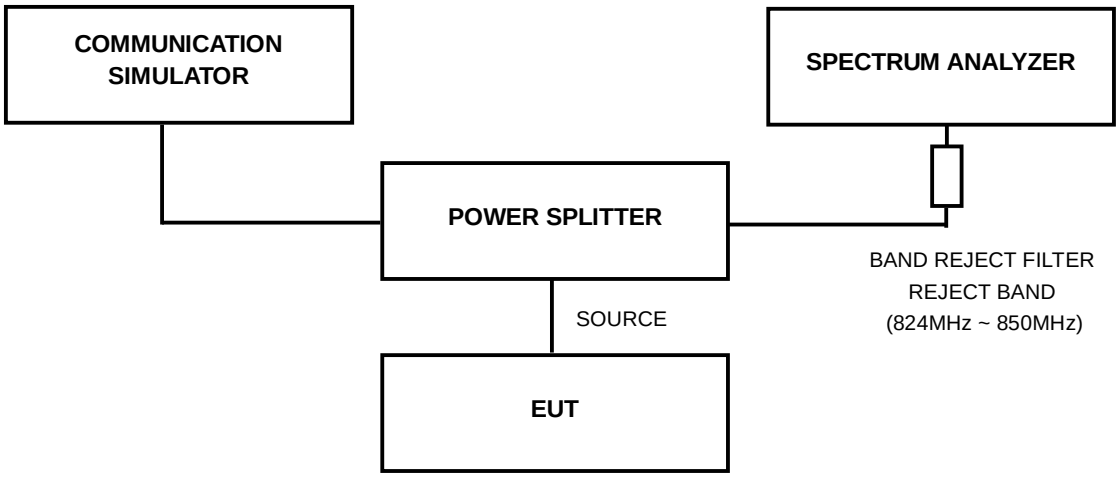
a. The EUT was set up for the maximum peak power with GSM link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 128, 190 and 251 (low, middle and high operational frequency range.)

b. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss 6dB in the transmitted path track.

c. When the spectrum scanned from 9kHz to 1GHz, it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.

d. When the spectrum scanned from 1GHz to 9GHz, it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.

4.5.4 TEST SETUP

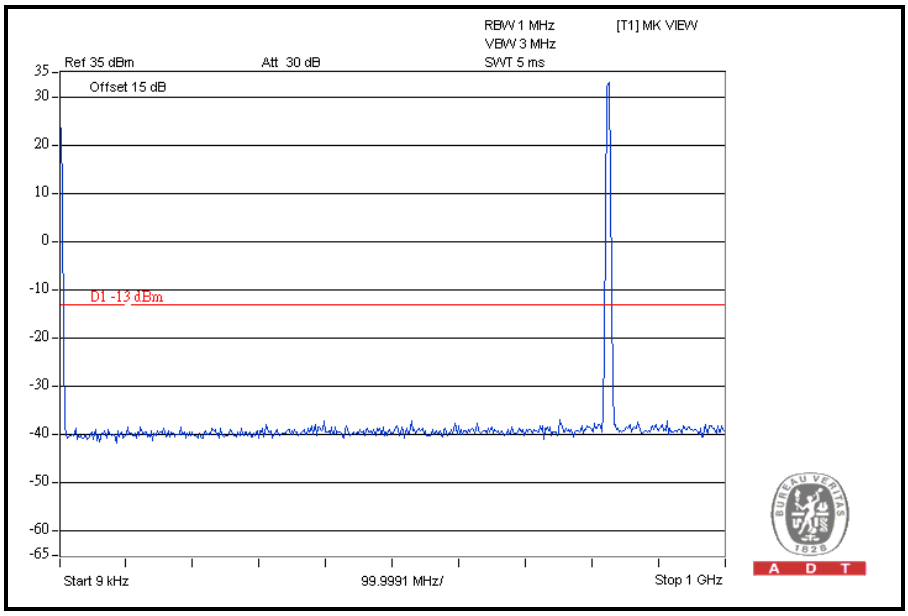


4.5.5 EUT OPERATING CONDITIONS

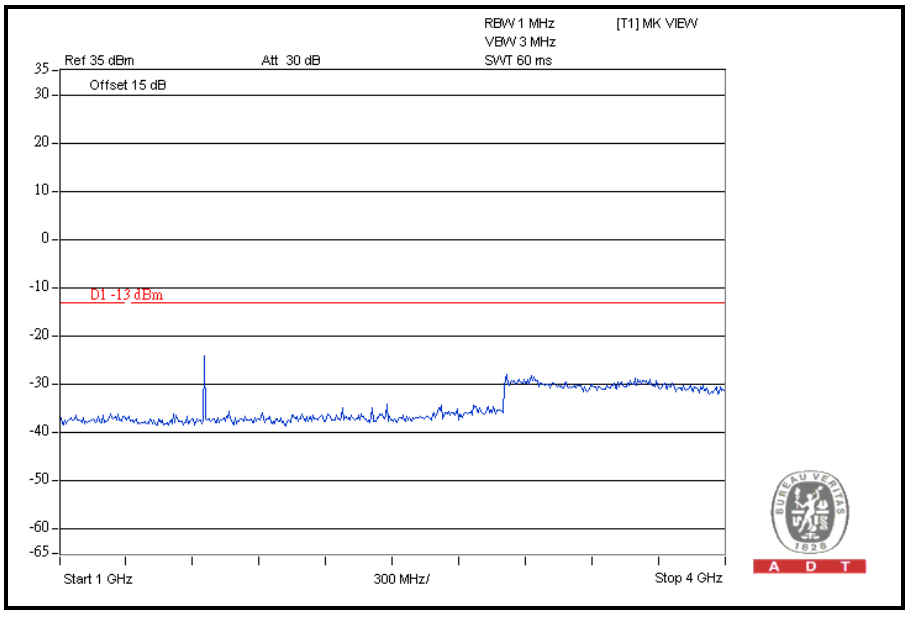
Same as Item 4.1.5

4.5.6 TEST RESULTS

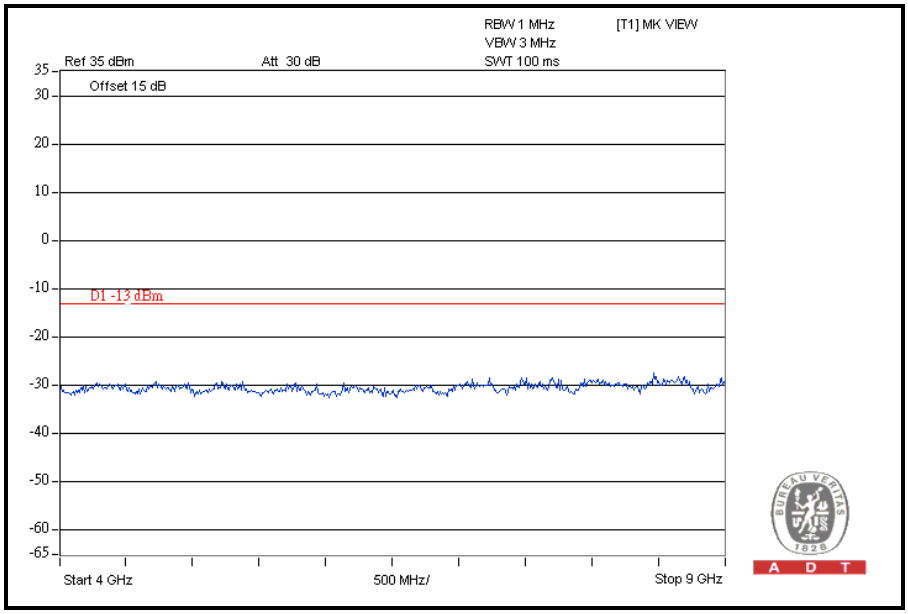
CH 128: 9kHz ~ 1GHz



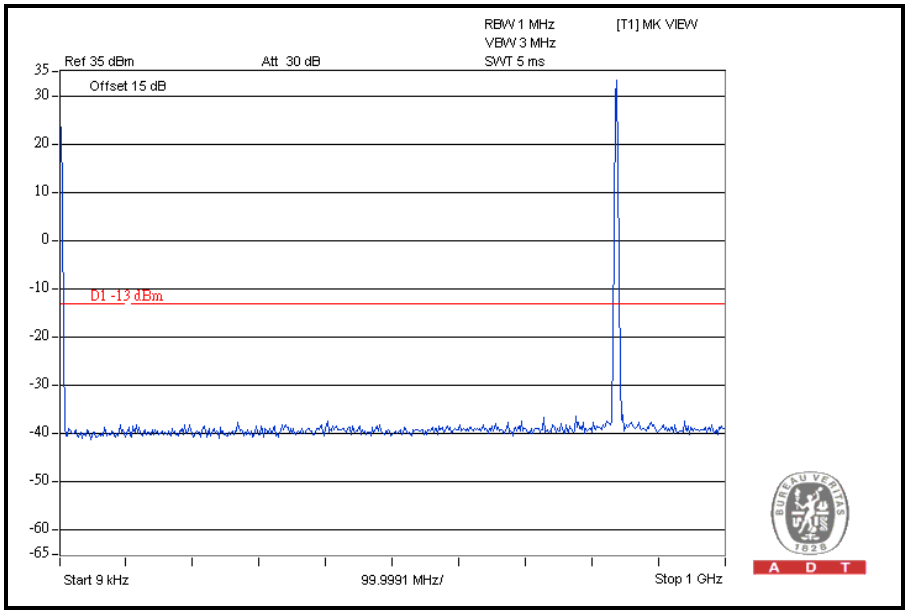
1GHz ~ 4GHz



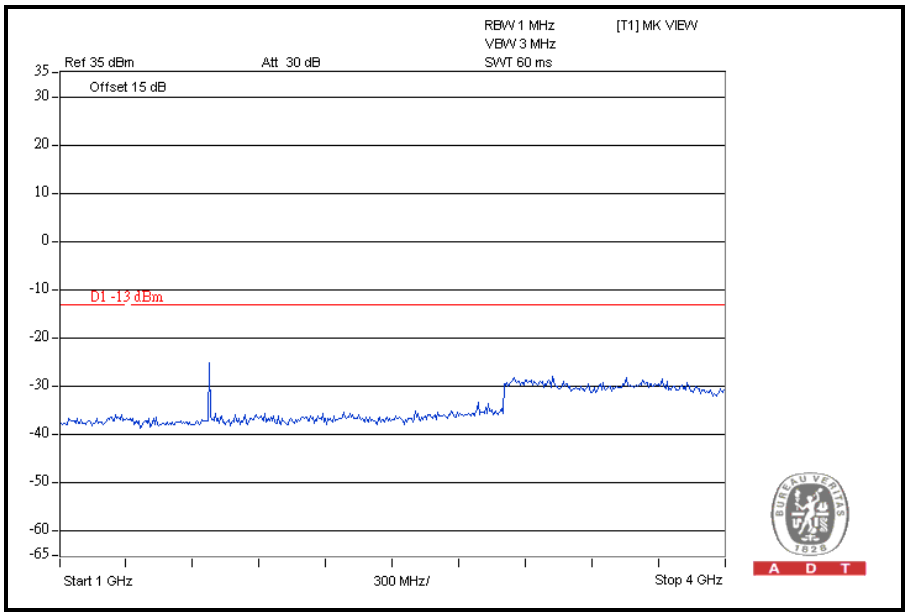
4GHz ~ 9GHz


RBW 1 MHz
VBW 3 MHz
SWT 100 ms
[T1] MK VIEW
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
D1 -13 dBm
Start 4 GHz
500 MHz/
Stop 9 GHz

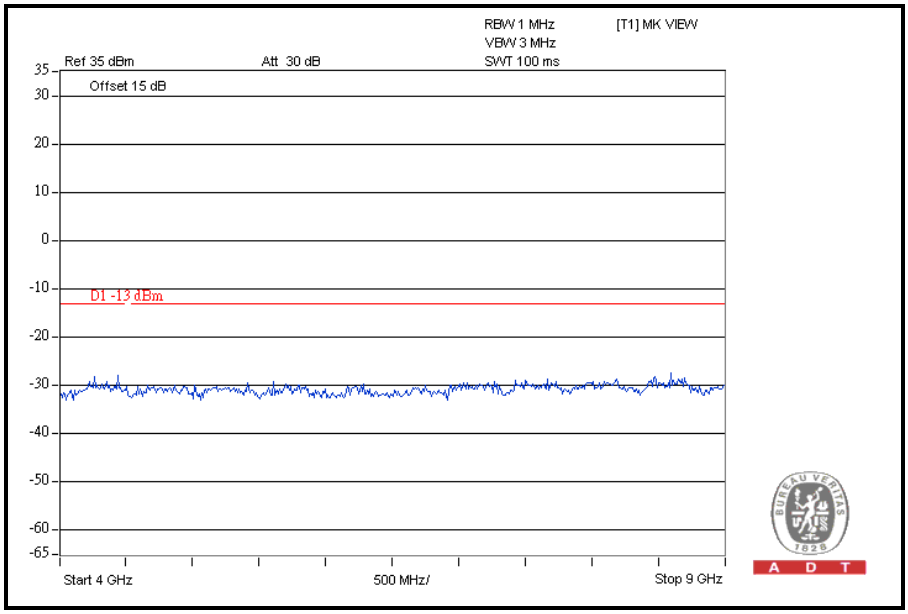
CH 190: 9kHz ~ 1GHz



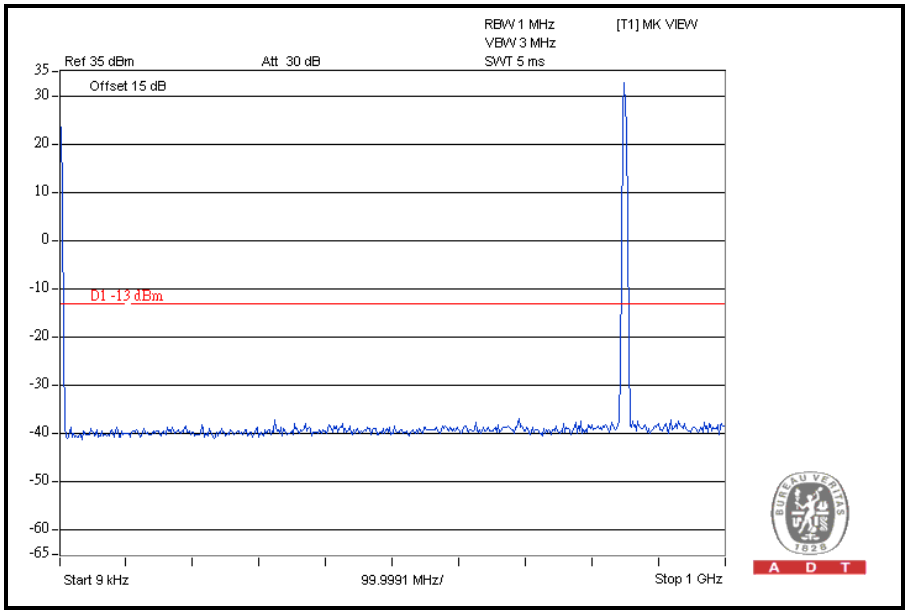
1GHz ~ 4GHz



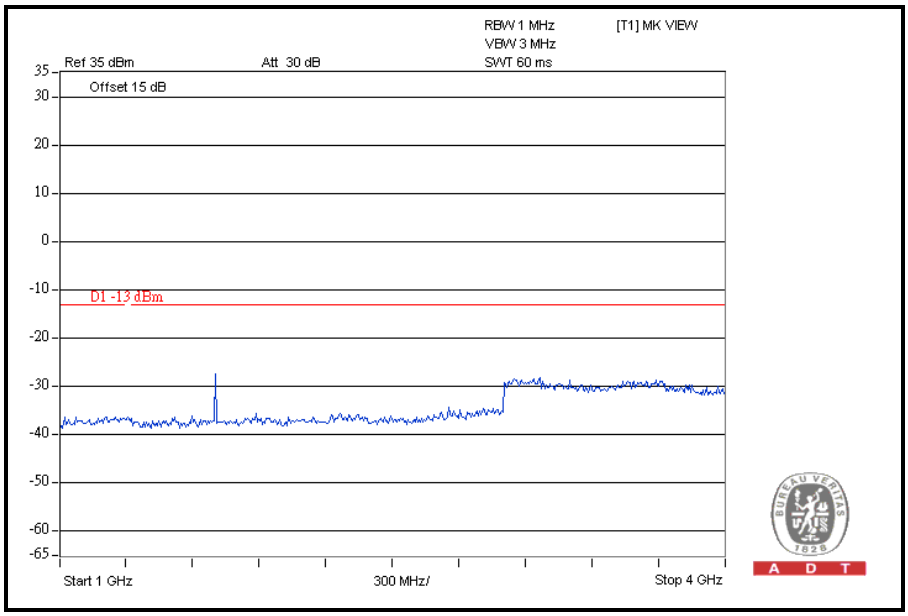
4GHz ~ 9GHz


RBW 1 MHz
VBW 3 MHz
SWT 100 ms
[T1] MK VIEW
Ref 35 dBm
Att 30 dB
Offset 15 dB
35
30
20
10
0
-10
-20
-30
-40
-50
-60
-65
D1 -13 dBm
Start 4 GHz
500 MHz/
Stop 9 GHz

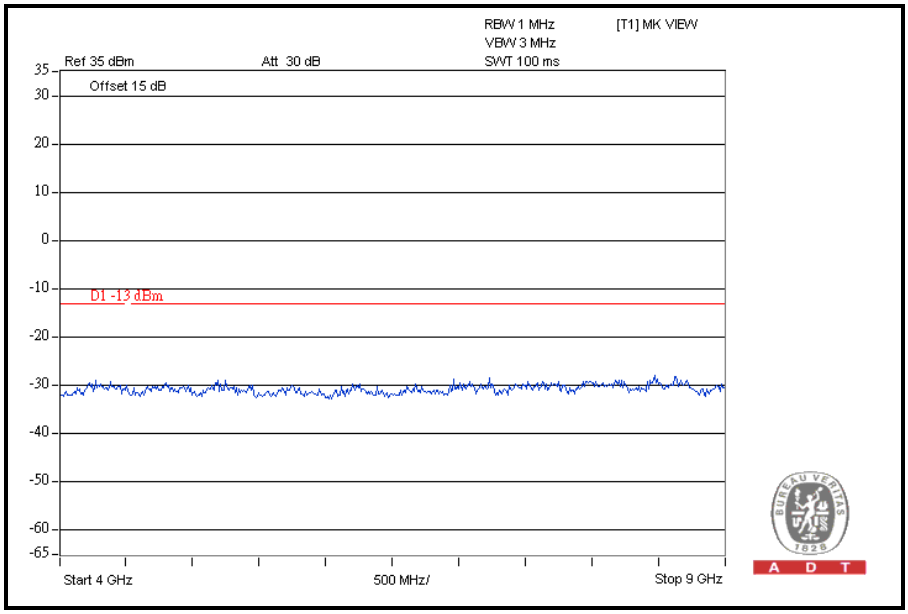
CH 251: 9kHz ~ 1GHz



CH 251: 1GHz ~ 4GHz



CH 251: 4GHz ~ 9GHz



4.6 RADIATED EMISSION MEASUREMENT (BELOW 1GHz)

4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 22.917(a), On any frequency outside a licensee's frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The emission of limit equal to –13dBm. So the limit of emission is the same absolute specified line.

LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBuV/m) (NOTE)
-13	82.22

NOTE: The following formula is used to convert the equipment radiated power to field strength.

$$E = [1000000\sqrt{}(30P)] / 3 \text{ uV/m, where P is Watts.}$$

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+RF106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.6.3 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the open site, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

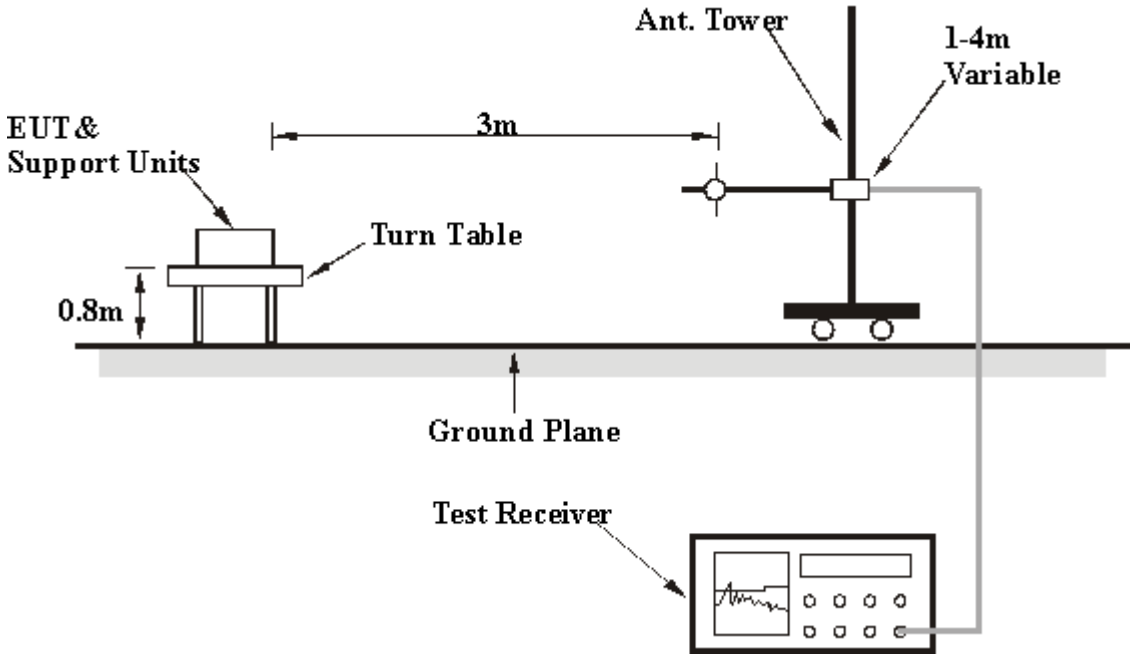
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.6.6 EUT OPERATING CONDITIONS

Same as Item 4.1.5

4.6.7 TEST RESULTS

MODE	TX channel 251	FREQUENCY RANGE	Below 1000 MHz
ENVIRONMENTAL CONDITIONS	18deg. C, 63%RH, 1024hPa	INPUT POWER	120Vac, 60 Hz
TESTED BY	Wen Yu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	113.16	33.52	-13	-56.45	-0.99	-57.44
2	194.7	32.65	-13	-62.39	3.77	-58.62
3	261.66	32.38	-13	-62.24	3.96	-58.28
4	486.2	36.04	-13	-60.24	2.87	-57.37
5	799.8	45.03	-13	-53.68	1.55	-52.13
6	862.8	37.17	-13	-62.23	4.60	-57.63
7	946.8	39.15	-13	-63.57	4.86	-58.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	58.08	34.19	-13	-47.23	-8.05	-55.28
2	106.68	37.03	-13	-53.29	-0.81	-54.10
3	195.24	36.75	-13	-58.34	3.83	-54.51
4	476.4	41.17	-13	-55.64	2.85	-52.79
5	546.4	42.41	-13	-52.56	2.54	-50.02
6	564.6	42.17	-13	-52.67	2.31	-50.36
7	946.8	45.39	-13	-57.33	4.86	-52.47

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

4.7 RADIATED EMISSION MEASUREMENT (ABOVE 1GHz)

4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 22.917 (a), On any frequency outside a licensee’s frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB. The limit of emission equal to –13dBm.

4.7.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY46180622	May 12 , 2010	May 11 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 28, 2010	Apr. 27, 2011
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 22, 2010	Jan. 21, 2011
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+R F106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_ V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.7.3 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the open site, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value " of step a. Record the power level of S.G

c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

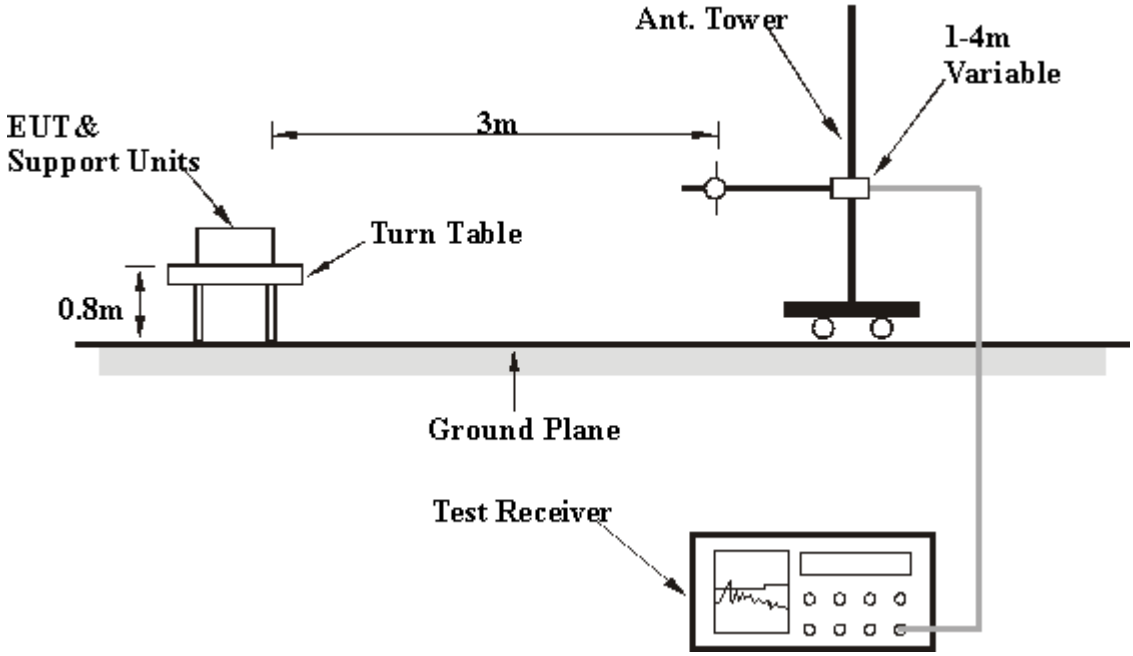
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

NOTE: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.7.6 EUT OPERATING CONDITIONS

Same as Item 4.1.5

4.7.7 TEST RESULTS

MODE	TX channel 128	FREQUENCY RANGE	Above 1000 MHz
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	18deg. C, 63%RH, 1024hPa
TESTED BY	Wen Yu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	1648.8	63.01	-13	-39.73	6.26	-33.47
2	2473.2	42.77	-13	-55.80	6.66	-49.14
3	3297.6	44.96	-13	-58.00	7.56	-50.44
4	4122	43.21	-13	-61.70	7.47	-54.23
5	6595.2	45.02	-13	-58.72	5.75	-52.97

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV)	Limit (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	Power Value (dBm)
1	1648.8	58.06	-13	-44.68	6.26	-38.42
2	2473.2	37.69	-13	-60.88	6.66	-54.22
3	3297.6	41.09	-13	-61.87	7.56	-54.31
4	4122	42.65	-13	-62.26	7.47	-54.79
5	6595.2	47.07	-13	-56.67	5.75	-50.92

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

MODE	TX channel 190	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	18deg. C, 63%RH, 1024hPa
TESTED BY	Wen Yu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	1673.2	59.01	-13	-43.62	6.31	-37.31
2	2509.8	38.66	-13	-59.86	6.66	-53.20
3	3346.4	42.32	-13	-60.69	7.63	-53.06
4	4183	43.49	-13	-61.35	7.44	-53.91
5	6692.8	47.67	-13	-55.65	5.56	-50.09

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	1673.2	63.25	-13	-39.38	6.31	-33.07
2	2509.8	43.15	-13	-55.37	6.66	-48.71
3	3346.4	45.19	-13	-57.82	7.63	-50.19
4	4183	43.87	-13	-60.97	7.44	-53.53
5	6692.8	44.53	-13	-58.79	5.56	-53.23

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

MODE	TX channel 251	**FREQUENCY RANGE**	Above 1000 MHz
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	28deg. C, 63%RH, 1024hPa
TESTED BY	Wen Yu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	**1697.6**	**63.76**	**-13**	**-38.74**	**6.35**	**-32.39**
2	2546.4	43.16	-13	-55.66	6.69	-48.97
3	3395.2	45.77	-13	-57.30	7.70	-49.60
4	4244	44.98	-13	-59.80	7.42	-52.38
5	6790.4	46.93	-13	-55.98	5.37	-50.61

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	**Freq. (MHz)**	**Emission Level (dBuV)**	**Limit (dBm)**	**S.G Power Value (dBm)**	**Correction Factor (dB)**	**Power Value (dBm)**
1	1697.6	59.83	-13	-42.67	6.35	-36.32
2	2546.4	39.56	-13	-59.26	6.69	-52.57
3	3395.2	42.77	-13	-60.30	7.70	-52.60
4	4244	45.15	-13	-59.63	7.42	-52.21
5	6790.4	47.88	-13	-55.03	5.37	-49.66

NOTE: Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
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Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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